4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Transportation Facilities

4.1.1 Roadway Facilities

No substantive change to impacts has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.1.1.

4.1.2 Other Transportation Facilities

No substantive change to impacts has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.1.2.

4.2 Social Impacts

4.2.1 Communities

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.2.1 for a description of resource impacts.

4.2.2 Residential Relocations

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.2.2 for a description of resource impacts.

4.2.3 Public Facilities

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.2.3 for a description of resource impacts.

4.2.4 Environmental Justice

The Preferred Alternative will not disproportionately impact minority or low-income populations. The location of minority and low income populations within the Project Corridor and their relationship to the alignment of the Preferred Alternative are located in the Draft SEIS, Exhibits 4-1 and Draft SEIS, Exhibit 4-2.

4.3 Economic Impacts

4.3.1 Business Impacts

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.3.1 for a description of resource impacts.

4.3.2 Employment

Employment impacts of the Preferred Alternative were evaluated in the Socio-Economic and Land Use Impacts of the Proposed I-355 Extension study (Draft SEIS, Appendix A). The following is a summary of study findings concerning employment growth.

The study found that while NIPC forecasts a doubling in employment within the Study Area between 1990 and 2020, the impact of the Preferred Alternative on stimulating this employment growth was negligible. This conclusion was based on an analysis that isolated the impacts of the Preferred Alternative from all other transportation projects designated within the 2020 Regional Transportation Plan (2020 RTP).

The analysis found that constructing the Preferred Alternative would not increase employment growth beyond that projected under the No-Action (Baseline) Alternative. The analysis estimated that constructing all the transportation projects of the 2020 RTP increased employment within the Study Area by less than one percent; and that incremental increase was at the southern edge of the Study Area. In addition to concentrating employment growth, the study found the Preferred Alternative also improved access from the Study Area to the large and growing suburban job centers in DuPage and northwest Cook Counties and the O'Hare Airport and its nearby suburban job centers. Refer to the Draft SEIS, Section 4.3.2 for additional information.

4.3.3 Tax Revenues

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.3.3, for a description of resource impacts.

4.3.4 Property Values

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.3.4, for a description of resource impacts.

4.4 Land Use and Zoning

All land within the Project Corridor is under the jurisdiction of a County or local government with an adopted land use plan and zoning ordinance. Will County and the municipal governments located within the Project Corridor reviewed the Preferred Alternative for consistency to their respective land use and transportation plans. The Preferred Alternative was found by these County and municipal governments to be consistent with their land use and transportation plans.

In addition to the plan consistency review, a survey of the Will County Board and Project Corridor mayors and village administrators was conducted. The survey achieved a 100 percent response rate and found that 100 percent of the surveyed County and municipal governments within the Project Corridor supported constructing the Preferred Alternative and felt that it would help achieve the land use goals of their communities. Draft SEIS, Appendix B provides additional data concerning the plan consistency review and local survey.

Additional review of the land use impacts of the Preferred Alternative was conducted in the Socio-Economic and Land Use Impacts of the Proposed I-355 Extension Study (Draft SEIS, Appendix A). The study found the Preferred Alternative to stimulate less than a two percent increase in Study Area population growth over the No-Action (Baseline) Alternative.

Similar to the effect of the Preferred Alternative on employment, the effect of the Preferred Alternative on population was to consolidate growth adjacent to the alignment to promote higher development densities along the Corridor. Consolidating growth within the Study Area would be consistent with regional land use goals of keeping the urbanized areas compact by focusing development as close as possible to the Chicago urban core.

4.5 Agricultural Impacts

4.5.1 Prime and Important Farmlands

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.5.1 for a description of resource impacts.

4.5.2 Agricultural Land Conversion and Production Loss

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.5.2 for a description of resource impacts.

4.5.3 Affected Farm Operations

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.5.3 for a description of resource impacts.

4.5.4 Land Evaluations and Site Assessment

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.5.4 for a description of resource impacts.

4.5.5 Borrow Pits

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.5.5 for a description of resource impacts.

4.5.6 Measures to Minimize Impacts to Agriculture

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.5.6 for a description of resource impacts.

4.6 Forest Preserves and Parks

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. This includes Section 6(f) lands. Refer to the 1996 FEIS, Section 4.6 for a description of resource impacts.

4.7 Bikeways

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.7 for a description of resource impacts.

4.8 Cultural Resources

4.8.1 Historic and Archaeological Resources

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.8.1 for a description of resource impacts.

4.9 Geology and Mineral Resources

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.9 for a description of resource impacts.

4.10 Water Quality and Water Resources

4.10.1 Groundwater Resources

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.1 for a description of resource impacts.

4.10.2 Impacts to Surface Waters

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.2 for a description of resource impacts.

Construction Impacts to Surface Waters

The tributary of Black Partridge Creek will be crossed using a box culvert. Temporary impacts from in-stream construction may increase turbidity and sedimentation downstream. The main stem of Black Partridge Creek remains over 61 meters (200 feet) from the proposed roadway, and riparian vegetation will remain undisturbed.

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.2.1 for a description of resource impacts.

Operational Impacts to Surface Waters

The operational impacts of the Preferred Alternative include the accumulation of pollutants on highway surfaces, median areas and adjoining right-of-way as a result of highway use, natural contributions and deposition of air pollution.

Stream concentrations associated with the roadway improvements were estimated for each watershed utilizing the procedure developed by Driscoll et al, (1990). The results of the estimation for each watershed are located in the 2000 Water Quality Technical Report. The efficiency of stormwater management designs was demonstrated through analysis of representative roadway pollutants, lead, zinc and copper. Detention basins placed in each watershed reduced these heavy metal concentrations in roadway runoff, and all streams achieved the general use water quality standards. Spring Creek and Black Partridge Creek are ~~is~~ presented below because of ~~its~~ their uniqueness in the Project Corridor. 1996 FEIS, Section 4.10.2.2, presents additional information.

Spring Creek

There are two wetland mitigation sites located within the Spring Creek Preserve/Greenway and downstream of the proposed roadway. Five detention basins provide pollutant filtration prior to discharging the roadway runoff to Spring Creek. These detention basins reduce maximum chloride concentrations through equalization and mixing of roadway runoff. Pollutant concentrations in Spring Creek are estimated to achieve the general use water quality standards.

The wetland mitigation areas are located over 1.6 kilometers (1.0 miles) downstream of the proposed roadway. Stream concentrations of pollutants will attenuate as Spring Creek receives additional flow. Where re-channelization of Spring Creek is used to establish the wetland area, there may be temporal changes in pollutant concentrations; however, continued free flow in the stream will minimize potential accumulation of

pollutants. The proposed mitigation site receives overflow from Spring Creek. The stream pollutant concentrations associated with overflows will achieve the general use water quality standards. Maintaining the water quality standards minimizes potential pollutant accumulation in the wetland mitigation area.

Black Partridge Creek

Black Partridge Creek is unique within the Project Corridor because it is supplied by numerous natural springs and has the characteristics of a cool, clear stream. The lower portion of the stream passes through the Black Partridge Nature Preserve. The Preferred Alternative does not cross the main channel of Black Partridge Creek; however, the edge of the right-of-way is within 61 meters (200 feet) at the nearest point. Of the three intermittent tributaries forming Black Partridge Creek, one is directly crossed by the alignment. Direct watershed effects are associated with this culvert crossing; however, this represents less than 0.26 square kilometers (0.1 square miles) of the 7.8 square kilometer (3.0 square mile) Black Partridge Creek drainage basin.

The water quality of the combined tributaries forming the headwaters of Black Partridge Creek continues to show the impact of land use changes associated with commercial and residential development. Chloride and total dissolved solid (TDS) concentrations within the Black Partridge Forest Preserve and downstream of Bluff Road exceeded Water Quality Standards in February 2000 (Chloride 700 to 750 mg/L ($9.3x10^{-2}$ to 0.1 oz/gal); TDS 1,500 mg/L (0.2 oz/gal)).

To minimize impacts to Black Partridge Creek, one design change and one operating change were made. First, the roadway was moved approximately 107 meters (350 feet) west of the recorded alignment. This reduced proximity of the roadway to Black Partridge Creek decreased potential salt transport. Second, during roadway operation, surface runoff south of Davey Road will be collected, detained and discharged outside of the Black Partridge Creek watershed. This eliminates 3.7 kilometers (2.3 miles) or 22 percent of anticipated highway runoff to Black Partridge Creek.

However, because of the substantial land use changes that have already occurred within the upper watershed of Black Partridge Creek, it is unlikely that runoff from the Preferred Alternative will cause adverse water quality or biotic impacts to the lower watershed of Black Partridge Creek.

Monitoring of Black Partridge Creek has been ongoing since 1994 and continues in accordance with previous commitments. Refer to the Draft SEIS, Section 6.5.2 for additional information.

Maintenance (Deicing Chemicals) Impacts

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.2.3 for a description of resource impacts.

Surface Runoff

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.2.3 for a description of resource impacts.

Splash

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.2.3 for a description of resource impacts.

Spray

In fulfillment of one of the environmental impact mitigation commitments agreed to in the 1996 FEIS, a road salt dispersion study was undertaken by Illinois State Water Survey (ISWS) in February 1996. Key components in the study as proposed in the 1996 FEIS included evaluation of the mass emission to the atmosphere, the size distribution of the emitted salt droplets and the concentration and size of these droplets at varying distances from their source. The initial results of the study were completed in April 2000 and are explained in the ISWS report titled "Atmospheric Dispersion Study of Deicing Salt Applied to Roads: First Progress Report" that is denoted as Contract Report 2000-05 (Peters, 2000).

Based on the data obtained in the ISWS study, an at-grade 4-lane freeway (I-55) would have salt deposition values of approximately 0.6, 0.25 and 0.1 grams/m^2 ($1.2x10^{-4}$, $5.1x10^{-5}$ and $2.0x10^{-5}$ lbs/ft^2), per salting event, at distances of 100 meters, 200 meters and 500 meters (330, 660 and 1640 feet) downwind, respectively. Multiplying by 12 events per year gives annual salt deposition estimates of 7.2, 3.0 and 1.2 grams/m^2 ($1.5x10^{-3}$, $6.1x10^{-4}$ and $2.5x10^{-4}$ lbs/ft^2) per year for a 4-lane at-grade freeway at the same respective distances. Because I-355 will be a 6-lane highway, the deposition values are expected to be 50% higher than these values along at-grade portions of I-355, assuming proportional emissions per number of freeway lanes. Refer to Draft SEIS, Section 4.10.2 for additional information.

Alternative Deicing Chemicals

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.10.2.3 for a description of resource impacts.

Measures to Minimize

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.2.4 for a description of resource impacts.

4.10.3 Impacts to Wetlands

The 2000 Wetland Technical Delineation Report (Plocher, 2000) identified 39 wetlands within the Project Corridor. Of this total, 18 will be impacted by the Preferred Alternative. Impacts will total 3.93 hectares (9.7 acres) based on the concrete bridge alternative, considered worst-case based on pier design. This total impact will be direct and permanent and will consist of 2.39 hectares (5.92 acres) of emergent wetland, 0.50 hectares (1.23 acres) of forested wetland, 0.65 hectares (1.59 acres) farmed wetland, 0.21 hectares (0.51 acres) excavated wetland and 0.18 hectares (0.45 acres) of unconsolidated bottom wetland.

Total wetland loss has decreased 0.28 hectares (0.7 acres) from the 1996 FEIS reported wetland loss. Draft SEIS, Table 4-1 summarizes the area of direct, permanent wetland loss due to highway construction of the Preferred Alternative. Refer to the Draft SEIS, Section 4.10.3 for additional information.

4.10.4 Operational Impacts

No substantive change has occurred to Operational Impacts since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.10.3.2 for details on the operational wetland impacts.

4.10.5 Cumulative Impacts

No substantive change has occurred to Cumulative Impacts since publication of the 1996 FEIS. Minor changes are addressed in Section 4.20, Secondary and Cumulative Impacts of this Final SEIS. Refer to 1996 FEIS, Section 4.10.3.3 for details on the cumulative wetland impacts resulting from operations.

4.10.6 Avoidance Alternatives

There were no alignments that avoided all wetland impacts. The Preferred Alternative was chosen to minimize impacts to wetlands. The Preferred Alternative, a refinement of the original proposed alignments, fills approximately 3.93 hectares (9.7 acres) of wetland. Refer to 1996 FEIS, Section 4.10.3.4 for more information on the Avoidance Alternatives.

4.10.7 Measures to Minimize

To minimize construction impacts, the ISTHA Standard Specification Section 107.23 will apply. These include temporary runoff diversions with sedimentation controls to be used to capture sediment laden runoff from the construction area.

Bridging wetlands in the Des Plaines River Valley minimizes the area directly filled and reduces changes in hydrologic characteristics of the affected wetlands. Drainage from the bridge will be directed via piping to a wet detention basin in the Des Plaines River Valley. Mitigation measures are also described in Section 4.23.3 of this document. Where practicable, no construction equipment maintenance will be allowed within the wetlands.

4.10.8 Wetland Compensation

As with the 1996 FEIS, the wetland mitigation for the project will be derived from three sources: two locations along the Spring Creek floodplain and the Lockport Prairie Nature Preserve. The total land area of mitigation required has changed due to the decrease in the total wetland hectares (acres) impacted by the Preferred Alternative and a change in the replacement ratios used to calculate total mitigation area. Refer to the Draft SEIS, Section 4.10.8 for additional details in wetland compensation for the Project Corridor.

4.10.9 Floodplains

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.4 for a description of resource impacts.

4.10.10 Impacts to Seeps

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.5 for a description of resource impacts.

4.10.11 Permits

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.10.6 for a description of resource impacts.

4.11 Biological Resources

4.11.1 Vegetation and Cover Types

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.11.1 for a description of resource impacts.

Construction Impacts

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.11.1.1 for a description of resource impacts.

Agricultural Lands

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.11.1.1 for a description of resource impacts.

Uplands, Shrublands and Forblands

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.11.1.1 for a description of resource impacts.

Des Plaines River Valley

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.11.1.1 for a description of resource impacts.

Operational Impacts on Vegetation

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.11.1.2 for a description of resource impacts.

Landscape Restoration

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.11.1.3 for a description of resource impacts.

4.11.2 Impacts to Wildlife

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.11.2 for a description of resource impacts.

Birds

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.11.2.1 for a description of resource impacts.

Mammals

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.11.2.2 for a description of resource impacts.

Reptiles and Amphibians

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.11.2.3 for a description of resource impacts.

4.11.3 Threatened and Endangered Species

Illinois Natural History Survey (INHS) field review (INHS, 1998) for federal and state listed threatened and endangered species found no threatened or endangered species beyond those observed in the 1996 FEIS surveys. For those species, minor variations in species density were observed, however, no new potential effects to habitat or populations were identified. Refer to 1996 FEIS, Section 4.11.3.

Updated findings for federally and state listed threatened and endangered species observed within the I-355 South Extension alignment by the INHS surveys conducted for the Draft SEIS are as follows.

Federally-listed Species

The 1996 FEIS identified the potential effects of the Preferred Alternative on the federally listed leafy prairie clover (*Dalea foliosa*) and the Hine's emerald dragonfly (*Somatochlora hineana*). (Refer to the 1996 FEIS, Section 4.11.3.1.) The U.S. Fish and Wildlife Service provided an opinion in 1995 that the project would not affect the leafy prairie clover. In November 1995, the Service concurred that no adverse effects to the Hine's emerald dragonfly were likely as a result of the Preferred Alternative. The concurrence opinion was predicated on pre, during and post-construction studies for the dragonfly and salt spray studies. The pre-construction phase of the dragonfly studies have been ongoing since 1995 and serve as a basis for the 1999 Dragonfly Recovery Plan. The results of these studies are summarized in Section 2 of the 1996 FEIS, the Dragonfly Recovery Plan (June 1999), INHS reports and the Illinois State Water Survey Report titled "Atmospheric Dispersion Study of Deicing Salt Applied to Roads (April 2000)". The result of the Hine's emerald butterfly pre-construction study re-confirmed that the Preferred Alternative as planned would not adversely effect the Hine's emerald dragonfly.

State-listed Species

In accordance with the state Threatened and Endangered Species Act, the Threatened and Endangered Species Survey included in the 1996 FEIS was updated. This update occurred in 1998 and included a records search and field review by INHS biologists. An additional threatened and endangered species record search was conducted in the spring of 2001. The ~~1998~~ INHS ~~field review~~ found no occurrence of state listed threatened or

endangered species or habitat beyond those documented in the 1996 FEIS. For those listed species documented in the 1996 FEIS, INHS staff found no significant impact has occurred to this resource since that publication. In compliance with the state Threatened and Endangered Species Act, consultation addressing the survey updates has been closed. Refer to the 1996 FEIS, Section 4.11.3.2 for a description of resource impacts.

4.12 Air Quality

4.12.1 Introduction

The air quality analysis for the Preferred Alternative was prepared in accordance with procedures contained in the Illinois Department of Transportation (IDOT) Air Quality Manual, May 1982 and the IDOT/IEPA Agreement on Microscale Air Quality Assessments for IDOT Sponsored Transportation Projects, July 2000. These procedures were adopted as standards after coordination with the Illinois Environmental Protection Agency (IEPA), Division of Air Pollution Control and the Federal Highway Administration, Illinois Division Office. The Chicago area, including the Project Corridor, is a severe ozone non-attainment area.

Carbon Monoxide Analysis

"Worst Case" Location Determination

As specified in the IDOT Air Quality Manual, carbon monoxide concentrations were calculated for a "Worst Case" site for the years 2001 (Existing), 2005 (Estimated Time of Completion - TOC), 2015 (Ten Years after Time of Completion) and 2020 (Design Year).

Using IDOT methodology, two intersection locations were initially analyzed for being the "Worst Case". In addition to the intersections, air quality analysis was also performed for the I-55/I-355 interchange and the toll plaza along the Preferred Alternative. These sites were also analyzed using 2020 traffic volumes.

Eight-Hour Carbon Monoxide Concentrations

The concentrations for the "Worst Case" provided in Draft SEIS, Tables 4-3a, 4-3b and 4-3c indicate that the National Ambient Air Quality Standards (NAAQS) will not be exceeded for Carbon Monoxide for either the Preferred or the No-Action (Baseline) Alternatives. Consequently, no substantial impact would result from construction of the Preferred Alternative.

One-Hour Carbon Monoxide Concentrations

No substantive change has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.12.2.3.

4.12.2 Other Pollutants

Volatile Organic Compounds and Oxides of Nitrogen

Volatile Organic Compounds (VOCs) and NO_x are reactive with each other and other atmospheric constituents and impurities and, in the presence of sunlight, they produce ozone (O_3).

The challenges of quantifying VOCs and NO_x from mobile sources to ambient ozone concentrations have been discussed between IDOT and IEPA. An agreement has been made to best reflect current air quality practices. IDOT and IEPA agree that total pollutant burden analysis for both hydrocarbons and nitrogen oxides is no longer necessary if the Preferred Alternative is included in the most recent conforming TIP and meets all the conformity analysis requirements. (Refer to Draft SEIS, Appendix C for the IDOT and IEPA Agreement on Microscale Air Quality Assessments.)

The staff at the Chicago Area Transportation Study (CATS) did perform an emission analysis for the Preferred Alternative utilizing the same process that is used for the TIP and RTP air quality conformity analysis. The results of this analysis are summarized in Table 4-1.

Table 4-1
Emission Analysis

Airport	Network	VOC tonnes/day (tons/day)	NOx tonnes/day (tons/day)	VMT vehicle miles traveled
Existing Airports	RTP Build	99.38 (109.55)	151.20 (166.67)	211,063,137
	2020 No-Action (Baseline)	100.14 (110.39)	150.86 (166.29)	212,028,899
South Suburban Airport	RTP Build	100.05 (110.29)	152.62 (168.23)	215,827,798
	2020 No-Action (Baseline)	101.30 (111.66)	152.62 (168.23)	216,201,429

Source: Chicago Area Transportation Study, Year 2020 Traffic Volumes

As shown, the impact on emissions from the Preferred Alternative is negligible for both VOC and NO_x. As such, the impact of the Preferred Alternative on ozone levels in the northeastern Illinois area is insignificant and no additional urban airshed analysis is necessary. The Illinois Environmental Protection Agency concurs in this finding. Refer to Draft SEIS, Appendix C for IEPA letter of concurrence dated December 2000.

The Preferred Alternative is included in the 2000 Edition of the 2020 Regional Transportation Plan (RTP) and in the analysis for the FY 2001-06 Transportation Improvement Program (TIP), endorsed by the Chicago Area Transportation Study (CATS), the Metropolitan Planning Organization (MPO). Projects in the TIP are considered to be consistent with the 2020 RTP endorsed by CATS. On November 2, 2000, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) determined that the 2000 Edition of the 2020 RTP conforms to the State Implementation Plan (SIP) and the transportation-related requirements of the 1990 Clean Air Act Amendments. On November 2, 2000, the FHWA and the FTA determined that the TIP also conforms to the SIP and the Clean Air Amendments. These findings were in accordance with 40 Code of Federal Regulations (CFR) Part 93, "Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs and Projects Funded or Approved Under Title 23 USC or the Federal Transit Act."

The Preferred Alternative's design concept and scope are consistent with the project information used for the TIP conformity analysis. Therefore, this project conforms to the

existing State Implementation Plan and the transportation-related requirements of the 1990 Clean Air Act Amendments.

4.12.3 Measures to Minimize Impacts

No substantive change has occurred to this resource since publication of the 1996 FEIS. Refer to 1996 FEIS, Section 4.12.5.

4.13 Noise

4.13.1 Introduction to Noise

One decibel (dB(A)) is the smallest change in sound level an average person can detect under ideal conditions. Usually, an observer cannot notice an increase in noise of 3 to 4 decibels if the increase takes place at a uniform rate over several years. To an average listener, a difference of 10 dB(A) is perceived half as loud or twice as loud.

The equivalent, steady-state noise level, L_{eq} is used to analyze traffic noise levels and identify noise impacts. L_{eq} is defined as the sound level which, in a stated period of time, contains the same acoustic energy as the time varying sound level during the same period.

4.13.2 Regulations and Policies

Federal Regulations

The Federal Highway Administration (FHWA) policies and procedures, 23 C.F.R 772, served as the procedural guidelines in the analysis. Incorporated into the regulations are Noise Abatement Criteria (NAC), which are based on the type of land use and activities performed at the respective sites.

State Policy

In implementing the FHWA 23 C.F.R, Part 772 regulations, the Illinois Department of Transportation developed the current Noise Analysis Policy dated April 3, 2000. This policy is Section 26-6 in the IDOT Bureau of Design and Environment Manual and defines traffic noise impacts to occur under the following circumstances:

- Design-year traffic noise levels are within 1 dB(A) of or exceed the NAC.
- Design-year traffic noise levels are greater than 14 dB(A) above existing traffic-generated noise levels.

Noise abatement must be considered at receptors where predicted traffic noise impacts occur. For this study, all development platted prior to April 1999 have been considered for analysis.

4.13.3 Traffic-Generated Noise Levels

A total of 70 receptors were selected as representing their surrounding area. The locations of these receptors are shown in Draft SEIS, Exhibit 2-14. These receptors represent farmhouses, single-family residences and areas in the Des Plaines River Valley. Noise levels obtained at these sites are used to assess impacts for nearby sites with similar characteristics (i.e. distance to the alignment, traffic volumes, location relative to Project Corridor).

Table E-1, Draft SEIS, Appendix E presents noise impacts. Several values for existing traffic noise exceeded the NAC. It can also be noted that there are several cases in which the modeled traffic noise is considerably less than the existing noise. These occurrences are due in part to the fact that existing noise measurements include background noise as well as traffic noise. TNM and STAMINA only model traffic noise. In some cases, traffic on the existing road is lower in future modeled current traffic because it is diverted to the Preferred Alternative.

4.13.4 Consideration of Abatement Measures

The Preferred Alternative is located in gently rolling terrain with the exception of the Des Plaines River Valley. Due to the level topography of the Project Corridor, it will be difficult to use natural terrain features as noise barriers. Every opportunity was made to depress the roadway to reduce traffic noise levels. The Preferred Alternative was depressed to an elevation within the limitations of positive drainage, stream crossings and grade separations. Deliberately depressing the roadway may be effective in reducing the sound levels by up to 5 to 10 dB(A).

Refer to Draft SEIS, Section 4.13.4 for a review of the noise abatement measures.

4.13.5 Noise Abatement Measures

See Draft SEIS, Table 4-6 for areas near the Preferred Alternative that were predicted to experience traffic noise impacts and were analyzed for noise abatement measures. See Draft SEIS, Exhibit 4-6 for barrier analysis regions grouped by receptors.

In the Project Corridor, noise abatement measures which are economically reasonable and feasible are considered likely for each impacted site. There are noise impacts for which no prudent solution is reasonably available.

Results of noise abatement analyses are presented in Draft SEIS, Appendix B, Table B-1. These preliminary indications of likely abatement measures are based on preliminary designs for barriers at height, length, cost and noise level reduction potential as given in Draft SEIS, Table 4-6. Refer to Draft SEIS, Exhibit 4-7 for location of noise abatement measures likely to be implemented. From Draft SEIS, Table E-1, Appendix E it can be noted that certain impacted receptors displayed no decrease in traffic noise levels when a barrier was in place (receptors 32, 44, 47 and 55). This is because those receptors were located closer to busy streets and intersections than they were to the Preferred Alternative. Thus, a barrier located along the Preferred Alternative would not substantially reduce noise levels experienced at those receptors.

There is a decrease of two barriers likely to be implemented from the 1996 FEIS using 2010 traffic and the Draft SEIS using 2020 traffic. The noise barrier in the Receptor Group Barrier A does not meet the cost per benefited receptor criteria as per the 2000 IDOT Noise Policy. The noise barrier in the Receptor Group Barrier C does not meet the 8 dB(A) noise reduction required per the 2000 IDOT Noise Policy.

This is due, in part, because the FHWA Transportation Noise Model provides better accountability for terrain information and acoustics. In addition, the 2010 noise levels predicted in the 1996 FEIS used STAMINA 2.0 which over-predicts traffic generated noise levels by 2 to 4 dB(A).

4.13.6 Noise Analysis for Section 4(f) Properties

There are two Section 4(f) properties located within the Preferred Alternative, the Illinois and Michigan Canal (I&M Canal) and Keepataw Forest Preserve. Only Section 4(f) properties with developed activities need to be evaluated for noise impacts.

The I&M Canal and Keepataw Forest Preserve will have similar noise effects caused by the Preferred Alternative. The I&M Canal is located in the industrial portion of the Des Plaines River Valley. There are no existing or proposed developed recreational activities that would be sensitive to noise increases, therefore only the Keepataw Forest Preserve was modeled for noise impacts.

Currently, the Keepataw Forest Preserve is not easily accessible due to the steep bluffs and lack of development. Future plans are to keep this area as natural as possible, with no plans for future development. There are no sensitive receptors located in the Keepataw Forest Preserve and the noise analysis for this area was performed for informational purposes only.

4.14 Solid Waste

4.14.1 Special Waste

Preliminary Environmental Site Assessments (PESAs) were conducted for the Preferred Alternative between 1990 and 1993. These PESAs were validated in September, 2000. The validation process found no major land use changes or any new CERCLIS sites within the proposed project area. The Preferred Alternative will not involve or impact any CERCLIS sites or other sites potentially impacted with regulated substances. Refer to the 1996 FEIS, Section 4.14.1 for additional information addressing special waste.

4.14.2 Construction Debris

Since publication of the 1996 FEIS, there has been a substantive change in the regulations addressing construction debris. These regulations promulgated by the Illinois Environmental Protection Agency and codified in the Environmental Protection Act, (415 ILCS 5/3.78a) define procedures for managing construction debris generated by road construction. Any construction debris generated in association with implementation of the Preferred Alternative would be managed in compliance with these regulations. Refer to the 1996 FEIS, Section 4.14.2 for additional information addressing construction debris.

4.15 Visual Impacts

No substantive change has occurred since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.15 for a description of resource impacts.

4.16 Utilities

All utilities inventoried in the 1996 FEIS have been relocated to accommodate the Preferred Alternative with the exception of a gas main at Davey Road and a Commonwealth Edison high voltage transmission tower line in the Des Plaines River Valley. The utilities relocated in the Project Corridor were constructed to accommodate the Preferred Alternative.

Impacts associated with utility relocation are fully accounted for in this Final SEIS because the impacts of such relocations would occur within the right-of-way of the Preferred Alternative. For the purposes of evaluating environmental impacts, all resources located within the right-of-way limits of the Preferred Alternative were considered impacted. For this reason, all past and future utility relocations associated with the Preferred Alternative are accounted for.

The exception is the Commonwealth Edison tower line in the Des Plaines River Valley. In this case, relocating the power line will impact wetlands located outside the right-of-way. The wetland impacts caused by this utility relocation are accounted for and documented in 1996 FEIS, Section 4.10.3.1.

4.17 Material Resources

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.17 for a description of resource impacts.

4.18 Energy Resources

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.18 for a description of resource impacts.

4.19 Construction Impacts

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Regulations for construction noise found in IDOT Standard Specifications for Road and Bridge Construction, Section 107.35: Construction Noise Restrictions will be adhered to. Refer to the 1996 FEIS, Section 4.19 for a description of resource impacts.

4.20 Secondary and Cumulative Impacts

In addition to the direct impacts discussed above, potential secondary and cumulative impacts have also been analyzed.

4.20.1 Approach

Since publication of the 1996 FEIS, the Council on Environmental Quality (CEQ) has developed an 11-step approach to evaluate cumulative effects. Draft SEIS, Table 4-7 summarizes this approach. EPA (EPA, 1999) and FHWA (FHWA, 1992) guidance documents have repeated and reinforced this approach.

This 11-step CEQ approach was applied to the Preferred Alternative to identify the affected resources and to quantify potential secondary and cumulative effects. The emphasis is on important issues of national, regional or local significance. The analysis presented in this section supersedes 1996 FEIS, Section 4.20.

This analysis also complies with the Northeastern Illinois Planning Commission (NIPC) directions for addressing direct, secondary and cumulative impacts. NIPC has supported the formation of the Heritage Corridor Planning Council (HCPC). The Council is comprised of local governments adjacent to the Project Corridor. One of the purposes of the HCPC is to help plan for and manage development in and around the Project Corridor. To support this goal, HCPC prepared the I-355 Heritage Corridor: Cumulative

Effects of Local Plans in October 1996. This document was used in the preparation of this secondary and cumulative analysis.

Details of the 11-step CEQ approach and it's findings are thoroughly discussed in Draft SEIS, Section 4.20.1.

4.20.2 Conclusion

The Study Area is undergoing rapid population and employment growth. This growth is projected to continue to year 2020. County and municipal governments within the Project Corridor have planned for this growth and have adopted land use plans that designate over 75 percent of the Project Corridor for development. The remaining lands are protected park and preservation lands. The local governments have formed the HCPC to manage the growth and associated impacts.

The Preferred Alternative combined with other federal actions and local economic development efforts would act to promote growth and development within the Project Corridor. However, the portion of future growth attributable to the Preferred Alternative is low, amounting to 0.6 percent of population and 0.1 percent of employment growth within the Study Area. Therefore, no additional mitigation would be required.

4.21 Short-Term Use and Long-Term Productivity Relationship

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.21 for a description of resource impacts.

4.22 Irreversible and Irretrievable Commitments of Resources

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.22 for a description of resource impacts.

4.23 Summary of Mitigation Measures

4.23.1 Noise

To minimize noise impacts from normal operations to sensitive areas, noise walls will be constructed. The locations of the noise walls will be as determined in Draft SEIS, Section 4.13. As explained therein, noise walls will be built where determined to be economically reasonable and feasible.

It will be the responsibility of all contractors of the Preferred Alternative to determine and comply with the limitations imposed by local ordinances with respect to construction operations, equipment noise and working time restrictions.

4.23.2 Relocation

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.23.2 for a description of resource impacts.

4.23.3 Wetlands

As with the 1996 FEIS, the wetland mitigation for the project occurs in three different areas. The first area will be along Spring Creek and satisfies Section 404 of the Clean Water Act; the second area occurs within the Lockport Prairie Nature Preserve and

satisfies agreements with the U.S. Fish and Wildlife Service and the Forest Preserve District of Will County; and the third area at a location along Spring Creek, east of Gougar which satisfies the remaining requirements according to the Illinois Interagency Wetland Policy Act of 1989.

The total acreage and location of mitigation remains unchanged from that negotiated in the 1996 FEIS for the Spring Creek and Lockport Prairie sites. Refer to Draft SEIS, Section 4.23.3 for detailed information regarding the size of the proposed mitigation sites.

IDOT and ISHTA will continue to work with Illinois Department of Natural Resources (IDNR), on all wetland compensation plans, to insure the project is in full compliance with the Illinois Wetland Policy Act of 1989.

4.23.4 Landscaping

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.23.4 for a description of resource impacts.

4.23.5 Park lands

No substantive change in impacts has occurred to this resource since publication of the 1996 FEIS. Refer to the 1996 FEIS, Section 4.23.5 for a description of resource impacts.

5.0 SECTION 4(f) EVALUATION

The Section 4(f) Evaluation presented in this Chapter supplements the Section 4(f) Evaluation incorporated in the FAP 340, Final Environmental Impact Statement and Section 4(f) Evaluation (1996 FEIS).

This section addresses only substantive change to Section 4(f) use occurring after publication of the 1996 FEIS. In the case where no substantive change has occurred, the reader is referred to the 1996 FEIS, Chapter 5.0.

Likewise, the full text of the Draft SEIS is not repeated within this Final SEIS but rather summarized and referenced by blue underlined hotlink text. For electronic versions, click on the hotlink to view the referenced text.

5.1 Description of Recommended Action

There has been no change to the recommended action, refer to the 1996 FEIS, Section 5.1.

5.2 Description of Section 4(f) Properties

Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303) protects any publicly-owned park, recreation area, or wildlife and waterfowl refuge, or a historic site of national, state, or local significance.

Use of Section 4(f) properties is anticipated as a result of implementing the Build Alternatives. Refer to Draft SEIS, Section 5.2 for a listing of Section 4(f) properties to be used. The number, size and location of Section 4(f) properties in the Project Corridor have not changed since publication of the 1996 FEIS except for the Lustron House, Homer Township Openspace and the Spring Creek Preserve. Draft SEIS, Exhibit 5-1 locates these and other Section 4(f) resources within the Project Corridor. The following summarizes the status of the Lustron House, Homer Township Open Space and the Spring Creek Preserve/Greenway. For a discussion of the other Section 4(f) properties within the Project Corridor, refer to the 1996 FEIS, Section 5.2.

5.2.1 Lustron House

The Lustron House, an architecturally significant historic building located on 135th Street, was determined in 1992 to be eligible for listing on the National Register of Historic Places. A copy of the Determination of Eligibility (DOE) letter dated February 3, 1992 is included in 1996 FEIS, Appendix B (under Illinois Historic Preservation Agency). Subsequent to the initial Record of Decision for the action, the Lustron House was razed.

5.2.2 Homer Township Open Space

A referendum was passed in Homer Township during November 1998 to allot approximately $8 million for the purchase of open space in Homer Township. Approximately 25.5 hectares (63 acres) of land located at the northeast corner of Gougar Road and Bruce Road (175th Street) has been purchased to date. The property is not planned for development, and will remain undeveloped open space. FHWA has determined that, since the land currently has no facilities on it, and there are no plans to

construct any facilities for public recreation or for wildlife management, the Homer Township Open Space does not meet the definition of Section 4(f) property.

5.2.3 Spring Creek Preserve/Greenway

Located in southeastern Homer Township, the planned Spring Creek Preserve/Greenway follows Spring Creek from approximately Farrel Road to Messenger Woods north of U.S. Route 6. Site development plans include the construction of wetlands and trails. Will County proposes the addition of one multi-use trail or one biking/hiking trail and one equestrian trail along Spring Creek.

The Greenway is currently in the planning and acquisition phase. The Forest Preserve District of Will County has acquired a portion of the Greenway from Farrel Road east to Gougar Road, although no construction has occurred. This portion of the Greenway is considered Section 4(f) property. The portion of the Greenway from Gougar Road to approximately 3,000 feet east is being jointly planned by IDOT and the Forest Preserve District of Will County to become a regional wetland bank. However, the land is not publicly owned or developed and therefore not considered to be a Section 4(f) property. The remainder of the Greenway east to Messenger Woods is also not publicly owned or developed, and is not considered to be a Section 4(f) property.

5.3 Use of Section 4(f) Properties

Use of Section 4(f) properties in the Project Corridor have not changed since the 1996 FEIS except for the Lustron House and the Spring Creek Preserve/Greenway. Use of the Lustron House and the Spring Creek Preserve/Greenway is addressed herein. Refer to 1996 FEIS, Section 5.3 for a discussion of the use of other Section 4(f) properties.

5.3.1 Lustron House

As indicated in the 1996 FEIS, the Preferred Alternative would use the Lustron House property just south of 135th Street. The property including the Lustron House structure fell within the required right-of-way of the Preferred Alternative and was displaced. Alternate alignments to avoid the Lustron House were evaluated but found not to be feasible and prudent, and therefore did not meet Purpose and Need. These Alternatives are discussed in 1996 FEIS, Section 3.4 and 1996 FEIS, Section 5.4. Refer to Draft SFEIS, Appendix D for documentation concerning the actions taken to address use of the Lustron House and the applicable Memorandum of Agreement (MOA).

5.3.2 Spring Creek Preserve/Greenway

The planned Spring Creek Preserve/Greenway would be crossed by the Tollroad/Freeway, Enhanced Arterial and the Lemont Bypass Alternatives. The Tollroad/Freeway would pass through the Greenway on ISTHA owned right-of-way south of Bruce Road. This is not considered Section 4(f) use because the ROW is owned by ISTHA and the parcels adjacent to the ROW are not publicly owned. The Enhanced Arterial and the Lemont Bypass would pass through the Spring Creek Preserve/Greenway on Gougar Road near U.S. Route 6, requiring the purchase of additional right-of-way to the east and west sides of Gougar Road depending on the improvements made to the roadway. Properties adjacent to Gougar Road have been acquired for the Spring Creek Preserve/Greenway by the Forest Preserve District of Will County and would be

considered Section 4(f) use. The portion of the Greenway from Gougar Road to about 3000 feet east is currently being jointly planned by IDOT and the Forest Preserve District of Will County to become a regional wetland bank. However, the property is not in public ownership and would not be considered Section 4 (f).

5.4 Summary of Alternate Alignments to Avoid ~~Impacts~~ Use

The range of alternative alignments to avoid Section 4(f) property use within the Project Corridor were expanded since publication of the 1996 FEIS. This Final SEIS reviewed four additional Alternatives for avoidance of Section 4(f) property use. These Alternatives are as follows: the No-Action (Baseline), Mass Transit, Enhanced Arterial and the Lemont Bypass Alternatives. Although these Alternatives did not satisfy Purpose and Need, they were reviewed to assess the comparative use of Section 4(f) properties relative to the Tollroad/Freeway Alternative.

The assessment of comparative use of Section 4(f) properties determined which Section 4(f) properties would be used by each Alternative and Alternate considered in the 1996 FEIS and the Draft SEIS. Draft SEIS, Table 5-1 summarizes these findings for all Alternatives and Alternates considered in the1996 FEIS and the Draft SEIS. Table 5-1 below, summarizes the findings of the assessment of Section 4(f) use for the Alternatives considered in the Draft SEIS. The Table lists by Alternative, the Section 4(f) properties potentially used, as well as a finding as to whether the Alternative is feasible and prudent. Refer to Draft SEIS, Chapter 3 for additional information concerning the alignment and design features of the Alternatives listed in Table 5-1.

The assessment of comparative use of Section 4(f) properties determined that there are no feasible and prudent Alternatives to the Tollroad/Freeway Alternative.

Table 5-1
Alternatives Presented in this Final SEIS

Alternative	4(f) Sites Used	Feasible?	Prudent?
No-Action Baseline (Final SEIS)	None	Yes	No, does not satisfy Purpose and Need.
Mass Transit	None	Yes	No, does not satisfy Purpose and Need.
Lemont Bypass	~~Woodridge Forest Preserve~~ ~~Black Partridge Nature Preserve~~ ~~Black Partridge Forest Preserve~~ Keepataw Forest Preserve Spring Creek Preserve/Greenway Higinbotham Woods Pilcher Park Illinois & Michigan Canal	Yes	No, does not satisfy Purpose and Need.
Enhanced Arterial	Spring Creek Preserve/Greenway Higinbotham Woods Pilcher Park	Yes	No, does not satisfy Purpose and Need.
Tollroad/Freeway (Preferred Alternative)	Keepataw Forest Preserve Illinois & Michigan Canal	Yes, Preferred Alternative	Yes, Preferred Alternative.

5.5 Planning to Minimize ~~Impacts~~ Harm

Note that the proposed use of Section 6(f) property and the associated measures to minimize harm highlighted in 1996 FEIS, Section 5.5 have not changed, and thus still apply. The process developed to mitigate use of the Lustron House is as follows.

5.5.1 Lustron House

Avoidance of this architecturally significant structure was not feasible and prudent. In consultation with the Illinois State Historic Preservation Office (ISHPO), a mitigation plan to mitigate use of this property was formulated. In accordance with this plan, the Lustron House was to be recorded according to Historic American Building Survey (HABS) standards. The structure was marketed through advertisements with a plan to move the Lustron House to a setting deemed suitable by the SHPO. A Memorandum of Agreement (1996 FEIS, Appendix B) was drafted in an effort to formalize this mitigation plan and fulfill all requirements pursuant to 36 C.F.R. Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f). The Lustron House structure was taken down prior to its HABS recording. Therefore, this stipulation of the MOA cannot be satisfied. A meeting between ISTHA and the Illinois Historic Preservation Agency (IHPA) was conducted on August 17, 2000 to discuss the status of coordination for the Lustron House. The meeting focused on an October 7, 1998 letter from IHPA to ISTHA in which IHPA identified three options for ISTHA to satisfy Stipulation 3 of the Memorandum of Agreement (MOA). ISTHA accepted Option 1: "development of a good resource file for distribution (brochure) which could be distributed to Lustron owners or the general public to promote better awareness of this historic property type, ". At an August 17, 2000 meeting, FHWA concurred that if ISTHA proceeds with the above stated Option 1, Stipulation 3 of the MOA would be adequately addressed and the Section 106 process would be complete. ISTHA confirmed its commitment to implementing Option 1 in a letter to IHPA dated August 28, 2000. Draft SEIS, Appendix D presents copies of the referenced letters, minutes of the referenced meetings, and applicable memorandum of agreements.

5.6 Coordination

As described in the 1996 FEIS there is no feasible and prudent alternative to the use of land from the Keepataw Forest Preserve and the Illinois and Michigan Canal.

Furthermore, the Preferred Alternative includes all possible planning to minimize harm to the Keepataw Forest Preserve and the Illinois and Michigan Canal resulting from such use. Additional information concerning planning to minimize harm is presented in 1996 FEIS, Chapter 5.

5.6.1 Forest Preserve District of Will County

Coordination with the Forest Preserve District of Will County (FPDWC) has continued during preparation of the Final SEIS. At a meeting on June 20, 2000, the FPDWC reaffirmed their desire to maintain the proposed LAWCON replacement land as described in the Draft SEIS. Intergovernmental agreements addressing LAWCON replacement are presented in Appendix A